

Long Term Field Evaluation (LTFE) Program

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LTFE Objective: To evaluate the performance of field-deployed Self-Contained, Self-Rescuers (SCSR)

Purpose

Self-Contained Self-Rescuers capable of supplying O₂ for 1 hour are required for coal miners. SCSRs need high reliability after lengthy deployments in harsh conditions (heat, shocks, vibration). The objective of this program is to evaluate the performance of field-deployed SCSRs, especially SCSRs that pass their manufacturer's inspection criteria. Such apparatus must function successfully to enable miners to escape safely during an emergency.

Sampling

*Generalizable to deployed units
able to pass manufacturer's
inspection*

Desired sample: 100 each
approved model

Inspection

- Must pass manufacturer's service-life criteria for continued use
- Visual inspection
- Moisture indicator (if present)
- Heat indicator (if present)
- Non-Destructive Tests as applicable
 - ASMD (Acoustic Solids Movement Detection)

Current SCSR

Chemical Oxygen



CSE SR-100



Dräger OXY K-Plus

Compressed Oxygen

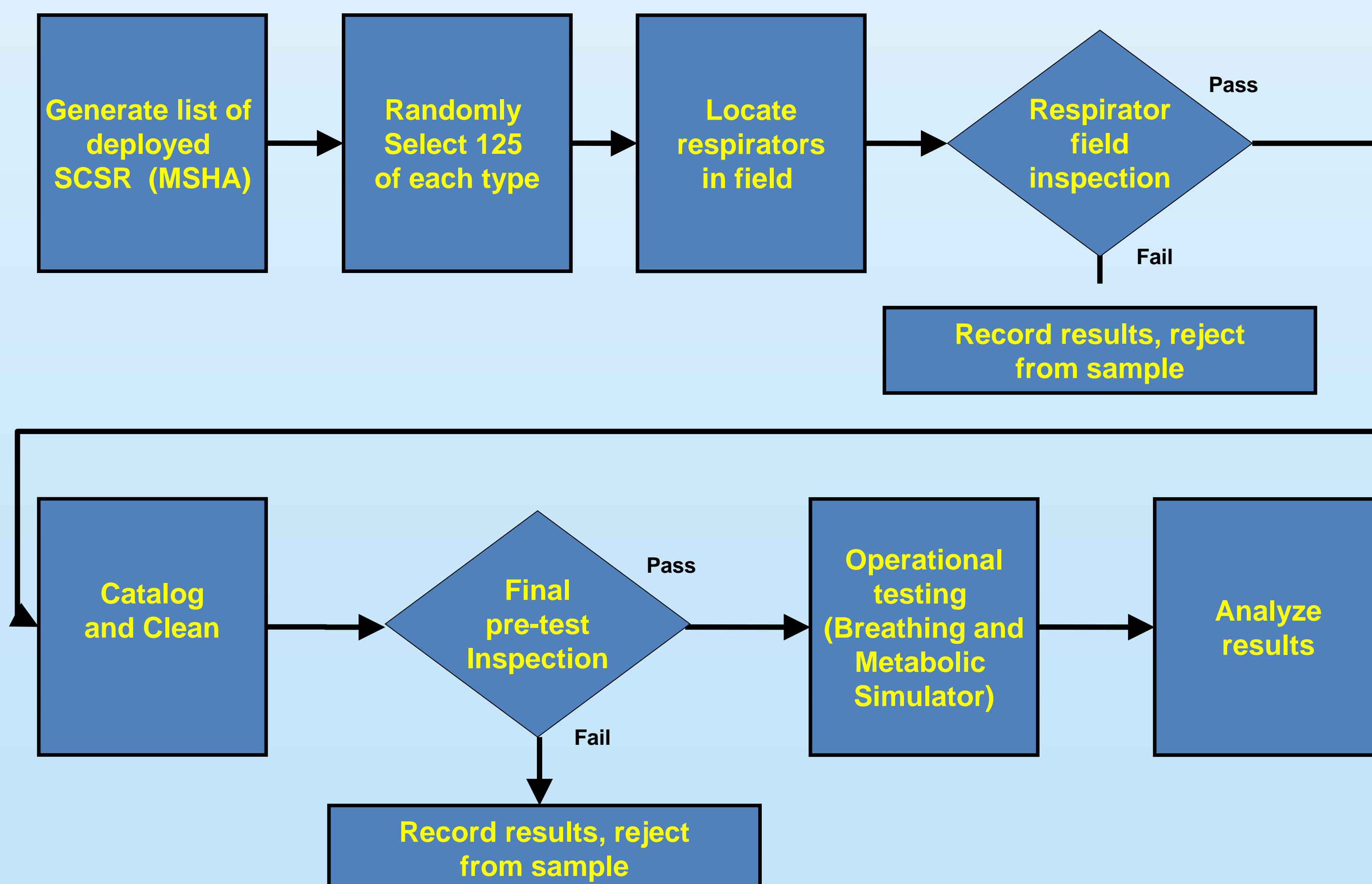


Ocenco M-20



Ocenco EBA 6.5

Overview Long Term Field Evaluation Process



Testing Performed

- Duration of protection
- CO₂ concentration
- O₂ concentration
- Breathing resistance
 - Inhalation
 - Exhalation
- Inhaled-gas temperature



Breathing and Metabolic Simulator

Previous Studies Influenced

- Temperature indicator
- Non-Destructive Tests
 - ASMD

Observation

Many deployed units not maintained
Heat • Impacts • Dust
Difficult field inspection conditions
Poor performance due to environmentally-induced damage or wear

- Heat degradation
- Shock degradation
- Vibration degradation

Results

Training and guidance enhance based on results released in reports covering each phase

Disclaimer: The findings and conclusions in this poster have not been formally disseminated by the National Institute for Occupational Safety and Health and should not be construed to represent any agency determination or policy.